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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,830	11/05/2003	Lonnie E. Holder	36400.31US3	7046

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EXAMINER

SAYOC, EMMANUEL

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/701,830	Applicant(s) HOLDER ET AL.	
	Examiner Emmanuel Sayoc	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/05/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Dual Pump Apparatus Comprising a Swash-plate Mechanism, Dual Drive Shafts, Charge Pumps, and an Auxiliary Pump for Oil Supply.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 7 line 12, it is unclear in the phrase "the pump input shaft" which input shaft is being referred to as there are two input shafts claimed.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi et al. (U.S. 6,425,244 B1), and Trimble (U.S. 6,694,729 B1).

With respect to claims 1, and 6-9, Ohashi in Figure 3, discloses a pump apparatus (100) driven by a prime mover (inherent but not shown) comprising a pump housing (121b) having a top side (top open side sealed by end cap 131), a bottom side (formed by housing section 121a) opposite the top side, and two sides on the right and left of the Figure. The device further comprises pump chamber (shown not enumerated) within the housing (121b). The pump housing is mounted on a frame (vehicle frame see Figure 1). The sides (arbitrarily chosen) of the pump housing are generally perpendicular to the vehicle frame. A pump end cap (131, 122a) is mounted on the top of the pump housing and has a running surface (121c) thereon. The pump apparatus (100) includes first and second hydraulic pumps (110a and 110b) mounted in the pump housing (121b) on the running surface. These pumps constitute swash-plate apparatus, mounted in the pump chamber (chamber encasing the pumps).

A first input shaft (111a) is drivingly engaged to the first hydraulic pump (110a). The first input shaft (111a) has a first end extending out of the bottom of the pump housing (121b) and a second end extending through the end cap (131) and out of the pump housing (121b). The first input shaft (111a) has a first end extending from the top of the housing, and the second end driven by the prime mover with a pulley (shown not enumerated).

A second input shaft (111b) is engaged to the second hydraulic pump (110b) and mounted in the housing (121b) having a first end and a second end (gear housing end and end cap end respectively).

The second pump (110b) receives a motive force from the first input shaft (111a). The second end of at least one of either the first input shaft or the second input shaft extends from the top of the housing (the extension of the first shaft drives charge pump 160).

A set of gears (158) is mounted on both shafts (111b, 113a) within a gear chamber (120). The first input pump shaft (110a) drives the gear set (158a), and the second input shaft is driven by the gear set (158b).

A cooling fan (181) is mounted on a distal end of either the first input shaft or the second input shaft that extends from the second side of the housing.

The Ohashi et al. device differs from the claimed invention in that they do not explicitly teach a cooling fan mounted on a second end (adjacent to the top of the housing 121b) of either the first input shaft or the second input shaft that extends from the top of the housing. One of ordinary skill in the art at the time the invention was made would have recognized that the cooling can be placed in a variety of places along the pump housing to provide the required cooling fluid flow so long as there is a drive shaft. Placing the cooling fan on the distal end of either of the shafts in Ohashi et al. and making the necessary minor modifications is an obvious variation of the inventive concept of cooling by a cooling fan driven by the pump drive shaft, which has been established as prior art.

The Ohashi et al. device differs from the claimed invention in that there is no explicit teaching of the vertical arrangement of the pump/pump housing axis, the perpendicular pump/pump housing axis to the axis of the vehicle, or the lower height (with respect to the ground) of the pulley than the height of the fan. As seen in Figures 1, and 2, it is evident that the pumps (110a, 110b) provide pressurized fluid to the motors (182a, 182b); the pumps are hydraulically connected to the hydraulic motors (182a, 182b). Since there is only a hydraulic link and no mechanical link, such as via gears, pulleys, or drive shafts, the exact orientation of the pump/pump housing with respect to the vehicle frame is not critical. Modifying the orientation of the pump/pump housing with respect to the vehicle frame would have been a non-critical, or obvious design variation for the inventive concepts. There has been not criticality or un-obvious design advantage of placing the pump/pump housing in the vertical arrangement of the pump/pump housing axis, the perpendicular pump/pump housing axis with respect to the axis of the vehicle, or consequently, the lower height (with respect to the ground) of the pulley than the height of the fan. Trimble in Figures 4 and 4a, teaches an analogous pump apparatus with a pump/pump housing (50) mounted on a vehicle in a vertical arrangement, perpendicular to the axis of the vehicle. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Ohashi et al. device by incorporating the vertical arrangement of the pump/pump housing, as taught by Trimble, a mere non-critical design choice, as stated above.

With respect to claims 3-5, a first motor (182a) is hydraulically connected

to one of the hydraulic pumps (110a) through a first set of hoses (184a, 192a). A second motor (110b) is hydraulically connected to the other of the hydraulic pump (110b) through a second set of hoses (182b, 194b). Trimble in Figure 4 shows a pair of hoses connecting the pumps (50) to the motors (38), where the hoses are of equal length. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first and second sets of hoses such that the two hoses in each set are approximately equal in length, as taught by Trimble, for design simplicity and the reduction in unwanted flow and pressure differences due to unequal flow rates due to unsymmetrical flow paths.

With respect to claim 6 and claim 9, the pump apparatus, although not shown, obviously comprises at least one mounting flange on the pump housing for mounting or securing the pump housing to the frame. As broadly interpreted, any mounting/connection device, whether it is a bolt through the housing, a weld connection to the housing, or a bracket for rigid connection constitutes a mounting flange embodied by the housing itself, a weld piece or bracket. It would have been obvious to mount the flange on a side of the pump housing located between the top and the bottom thereof, if not all the sides to enhance vehicle integrity.

Claims 10-12, 14, and 15, are hereby rejected for citing identical subject matter to those of previous claims already rejected in the arguments above.

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6. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi et al., as modified by Trimble, as applied to claims 1, 9, and 12, and in further view of Sheets (U.S. 5,207,060).

Ohashi et al. sets forth a device as described above, which is substantially analogous to the claimed invention. The Ohashi et al. device differs from the claimed invention in that there is no explicit teaching of pump housing being mounted on the frame at a location along the centerline of the vehicle. Sheets, in Figure 1, teaches an analogous hydraulic pump and motor assembly (18) mounted on the frame at a location along the centerline of the vehicle. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Ohashi et al. device by incorporating the center line mounting of the pump assembly, as taught by Sheets, in order to obtain vehicle balance, and weight distribution symmetry for better handling.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to dual hydraulic pumps.

U.S. Pat. 6,487,856 B1 to Ohashi

U.S. Pat. 4,920,733 to Berrios

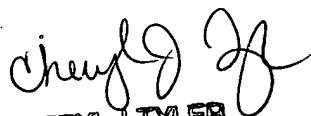
Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (571) 272 4832. The examiner can normally be reached on M-F 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Emmanuel Sayoc
Examiner
Art Unit 3746


CHERYL J. TYLER
PRIMARY EXAMINER

ECS

January 21, 2005